

SmartSwitch Router
510 and 520
Installation and Configuration Guide

9032869

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Conformance to Directive(s)/Product Standards: **EC Directive 89/336/EEC
EC Directive 73/23/EEC
EN 55022
EN 50082-1
EN 60950**

Equipment Type/Environment: **Networking Equipment, for use in a
Commercial or Light
Industrial Environment.**

We the undersigned, hereby declare, under our sole responsibility, that the equipment packaged with this notice conforms to the above directives.

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Overview

This manual describes how to install the SmartSwitch Router 510 and SmartSwitch Router 520 (also referred to in this manual as SSR-510 and SSR-520). It also provides problem solving information, connector pin assignments, and other general information.

Using This Guide

Read through this guide completely to understand the router features, capabilities, and Local Management functions. A general working knowledge of Ethernet and IEEE 802.3 type data communications networks and their physical layer components is helpful when using these devices.

Intended Audience

This manual is intended for the hardware installer. The installer is responsible for ensuring that the hardware is installed and tested. It shows how to install when the site is verified and the cables and devices are in place. This guide shows how to verify the site, install cables and devices and troubleshoot problems. The person installing software can then verify the system installation.

Structure of This Guide

This guide is organized as follows:

Chapter/ Appendix	Title	Description
Chapter 1	Product Introduction	Describes the SSR-510 and SSR-520 routers and their features.
Chapter 2	Installing and Cabling	Provides instructions for installing the router in a Rack Mounting Shelf and cabling the routers.
Chapter 3	Connecting the Console Port Cable	Provides instructions for connecting the router to the console port.
Chapter 4	Configuring the Router	Describes how to configure the routers using menus.
Chapter 5	Supporting ISDN for the SSR-510	Describes ordering an ISDN line and obtaining a network terminator device.
Appendix A	Problem Solving	Provides installation-specific problem solving information using the LEDs.
Appendix B	Connectors, Adapters and Cable Connections	Describes connectors and pin assignments, adapters, and cable connections.
Appendix C	Product Specifications	Provides product specifications and a parts list.
Appendix D	Installation Information - United Kingdom	Contains installation information required for the United Kingdom.

Related Documentation

The following documents may help the user to configure and manage the SmartSwitch Router SSR-510 and SSR-520:

Part Number	Title	Description
9032873	<i>SmartSwitch Router 500 Series Bridging Configuration Guide</i>	Describes bridging methods, operational features of bridging, configuration methods, basic configurations, and monitoring the bridging functionality.
9032875	<i>SmartSwitch Router 500 Series Event Logging System Messages Guide</i>	Describes messages logged by the Event Logging System (ELS).
9032876	<i>SmartSwitch Router 500 Series Network Interface Operations Guide</i>	Describes the configuration and monitoring the supported network interfaces.
9032877	<i>SmartSwitch Router 500 Series Routing Protocols Reference Guide</i>	Provides detailed reference information about protocols and interfaces supported by the router.
9032878	<i>SmartSwitch Router 500 Series Routing Protocols Users Guide</i>	Explains how to configure and monitor the routing protocols supported by the router.
9032880	<i>SmartSwitch Router 500 Series Router Configurator User's Guide</i>	Explains how to install the Router Configurator software, and use it to create and load configurations into the SmartSwitch Router 500 Series routers.
9032879	<i>SmartSwitch Router 500 Series System Software Guide</i>	Provides information about installing, configuring, and operating the router system software.

Part Number	Title	Description
9032882	<i>SmartSwitch Router 500 Series System Quick Reference Guide</i>	Provides quick reference information about configuring the SmartSwitch Router 500 Series system software.
9032881	<i>SmartSwitch Router 500 Series Systems Network Architecture Guide</i>	Describes how to use SDLC Relay to route SNA traffic across a WAN.
9032874	<i>SmartSwitch Router 500 Series DTF (Digital Trace Facility) User Guide</i>	How to install and use the trace facility which enables you to trace packets within the protocol layers of the SmartSwitch Router 500.

The manuals referenced above can be obtained on the World Wide Web (refer to the section titled **Getting Help**).

Document Conventions

Throughout this guide, the following symbols are used to call attention to important information.



Note symbol. Calls the reader's attention to any item of information that may be of special importance.



Caution symbol. Contains information essential to avoid damage to the equipment.



Electrical Hazard Warning symbol. Warns against an action that could result in the presence of an electrical hazard.

Glossary

This book uses the following terms:

Term	Definition
Basic Rate	A specific ISDN offering providing users with two 64Kb/s data channels (e.g. “B” channels) and one 16Kb/s signalling channel (e.g. “D” channel).
CLI	Command Line Interface
Dedicated Ethernet cable	IEEE 10Base2 coaxial cable that carries Ethernet signals.
DRS	Distributed Routing Software
Ethernet	A term used for product compatibility with ISO 8802-3/ANSI/IEEE 802.3 standards and the Ethernet standards for CSMA/CD local area networks (LANs).
SNMP	Simple Network Management Protocol, an industry standard protocol for network management.
SSR	SmartSwitch Router
WAN	Wide Area Network. A generic term used to identify serial links which traverse large geographic areas.

Getting Help

For additional support related to this device or document, contact the Cabletron Systems using one of the following methods:

World Wide Web	http://www.cabletron.com/
Phone	(603) 332-9400
Internet mail	support@cabletron.com
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To send comments or suggestions concerning this document, contact the Cabletron Systems Technical Writing Department via the following email address: TechWriting@cabletron.com <i>Make sure to include the document Part Number in the email message.</i>	

Before calling Cabletron Systems, have the following information ready:

- Your Cabletron Systems service contract number
- A description of the failure
- A description of any action(s) already taken to resolve the problem (e.g., changing mode switches, rebooting the unit, etc.)
- The serial and revision numbers of all involved Cabletron Systems products in the network
- A description of your network environment (layout, cable type, etc.)
- Network load and frame size at the time of trouble (if known)
- The device history (i.e., have you returned the device before, is this a recurring problem, etc.)
- Any previous Return Material Authorization (RMA) numbers

Product Introduction

Overview

This chapter provides a description of the SmartSwitch Router 510 and SmartSwitch Router 520 (also referred to in this manual as SSR-510 and SSR-520) and their features.

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What Are the SmartSwitch Router 510 and SmartSwitch Router 520?

The SmartSwitch Router SSR-510 and SmartSwitch Router SSR-520 (also referred to in this manual as the SSR-510 and SSR-520 routers) provide multiprotocol routing for linking Ethernet LANs to corporate Wide Area Networks (WAN).

The routers offer flexible software support that can be tailored to the needs of specific remote environments.

The SSR-510 and SSR-520 routers are available with Multiprotocol Software. Protocol support, for your package, is described in the *Cabletron Distributed Routing Software Release Notes*.

The SSR-510 and SSR-520 standards-compliant technology ensures interoperability in multivendor networks.

SSR-510 Router

The SSR-510 router has the following port connections:

- One Ethernet interface, in either dedicated Ethernet (10Base2) or twisted pair (10BaseT)
- One synchronous serial WAN port capable of T1/EI data rates
- One ISDN basic rate interface (BRI) S/T-interface

SSR-520 Router

The SSR-520 router has the following port connections:

- One Ethernet interface, in either dedicated Ethernet (10Base2) or twisted pair (10BaseT)
- Two synchronous WAN ports capable of T1/EI rates

Features

The SSR-510 and SSR-520 routers include the following features.

Performance and Memory

The SSR-510 and SSR-520 routers contain the following performance and memory features:

- Industry-standard processors operating at 22.5 MHz clock rates, and utilizes 32-bit address and data buses for maximum bus bandwidth.
- 4 MB of system flash memory.
- 4 MB of system memory using PC compatible memory DSIMMS.
- Memory accesses are parity protected on a byte wide basis.

Configuration and Management

The following configuration and management options are available:

- Support for the following configuration options:
 - EasyStart configuration loader
 - Graphical User Interface (GUI) using the *clear*VISN Router Configurator tool
 - Command Line Interface (CLI) using the console port
 - CLI using Telnet
- Upgradeable device firmware (in nonvolatile Flash memory) using Trivial File Transfer Protocol (TFTP).
- Simple Network Management Protocol (SNMP) for monitoring.

EasyStart

EasyStart is a feature that allows you to downline load configuration files that are stored on a server via BOOTP/TFTP.

Using EasyStart and the *clearVISN* Router Configurator eliminates the need for configuring the router using the Command Line Interface (CLI). When the router is booted, it autoconfigures all interfaces and sends out requests to load its configuration file. Once the file is received, the router automatically restarts so that the configuration parameters specified in the file take effect.

Refer to the *SmartSwitch Router 500 Series System Software Guide* for information about using the EasyStart feature.

Front and Back Panel Components






The following sections describe the front and back panel components for the SSR-510 or SSR-520 routers.

Front Panel Components

Table 1-1 describes the front panel components, including LEDs, that are illustrated in Figure 1-1.

For problem-solving information using the LEDs, refer to Appendix A.

Table 1-1. Front Panel LEDs and Connectors

Item	Icon	Name	Description
1		Power LED	Lights when the router has power.
2		Module OK LED	Lights when the router passes self-test.
3		Network OK LED	Indicates network connection or port state.
4		Network Activity LED	Indicates network traffic connection. Blinks faster as traffic becomes heavier.
5		Port 1 Serial Line OK LED	Indicates self-test pass or failure.
6		Port 1 Serial Line Activity Indicator	Indicates operation mode on port 1.

Continued on next page ...

Table 1-1. Front Panel LEDs and Connectors




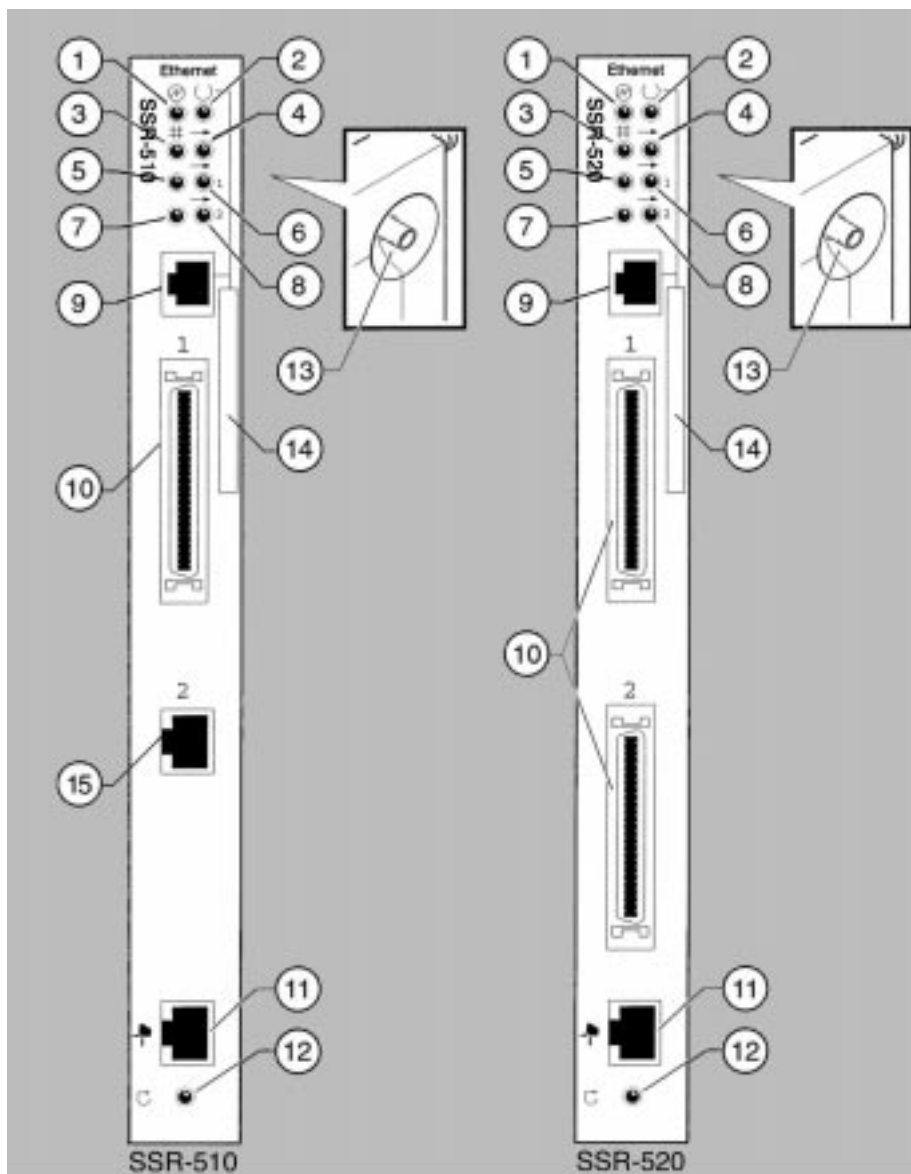
Item	Icon	Name	Description
7		Port 2 Serial Line OK LED (for SSR-520)	Indicates self-test pass or failure.
		ISDN Port OK (for SSR-510)	Indicates self-test pass or failure.
8		Port 2 Serial Line Activity Indicator (for SSR-520)	Indicates operation mode on port 2.
		ISDN Activity Indicator (for SSR-510)	Indicates operation mode on ISDN port.
9		Twisted Pair (10BaseT) Connector	Connects the router to a 10BaseT network.
10		Synchronous Serial Port Connectors (labeled 1 and 2 for SSR-520)	These ports support the EIA530A, RS232/V.28, RS422/V.11, V.35, X.21 Leased Lines (LL), RS423/V.10
11		Console Port Connection	Connects a console terminal that is used to manage the console. Uses an 8-pin MJ connector.
12		Dump Button	Forces a dump of router memory. Refer to the <i>Distributed Router Software System Software Guide</i> for more information.
13		Ethernet Network Connector (BNC)	Connects the router to the dedicated Ethernet segment. Not used when the router is connected through the twisted pair (10BaseT) connector.
14		Ethernet Label	Lists the Ethernet address of the module.
15		ISDN Connection (labeled 2 for SSR-510)	Connects the module to an ISDN segment. Uses an 8-pin MJ connector.

Figure 1-1. Front Panel LEDs and Connectors



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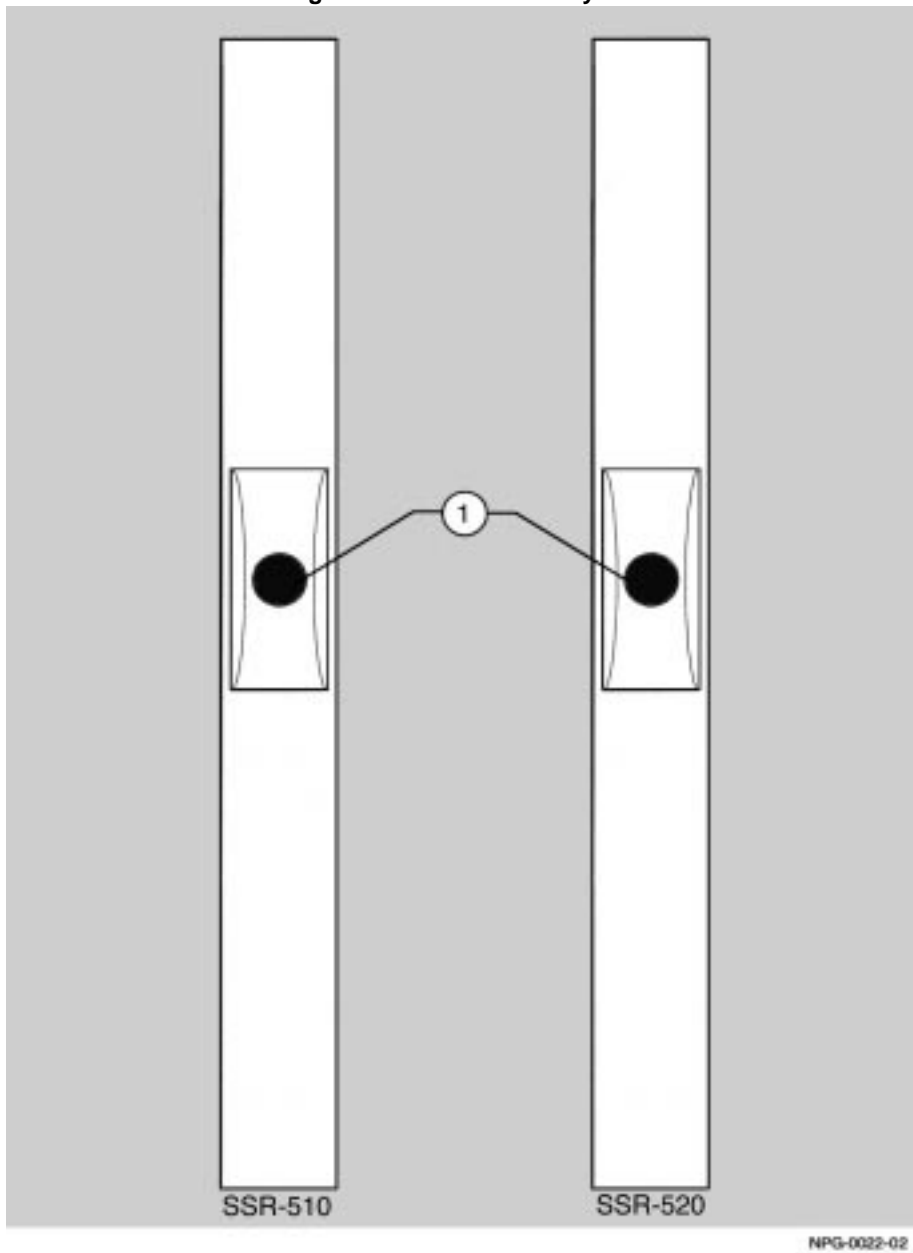
Back Panel Components

Table 1-2 describes the back panel components that are illustrated in Figure 1-2.

Table 1-2. Back Panel Feature Components

Item	Name	Description
1	Power Connector	Receives dc current from the power supply.

Figure 1-2. Back Panel Layout



Installing and Cabling

Overview

This chapter describes how to install the SmartSwitch Router 510 and SmartSwitch Router 520 in a rack mount shelf and how to cable the routers.

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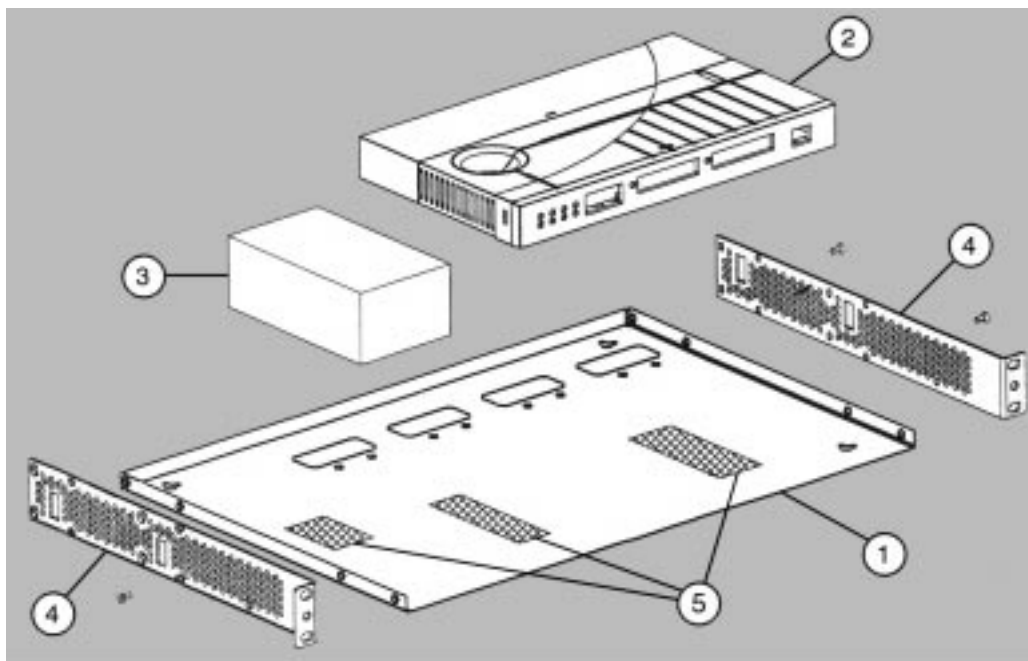
Topic	Page
Installing the Router in the Rack Mounting Shelf	2-2
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Installing the Router in the Rack Mounting Shelf

Either the SSR-510 or the SSR-520 router can be used as a standalone device mounted on a wall or installed in a standard 19-inch rack using a shelf assembly (Part Number H9544-MS).

Figure 2-1 shows the RETMA standard mounting shelf (1) that is used to mount routers into a standard 19-inch rack. This shelf provides support for one router (2) and one power supply unit (3). The shelf is attached to a rack via rack mounting brackets (4). The router is secured to the shelf using adhesive strips (5). All routers with T-type dedicated Ethernet connectors on the top, require 2-1/2 inches of vertical mounting space. Installation instructions follow this figure.

Figure 2-1. Rack Mounting Shelf, Router and Power Supply Assembly



NPG-0018-01

Assembling the Rack Mount Shelf

Figure 2-1 shows the rack mount shelf. The following table provides installation instructions.

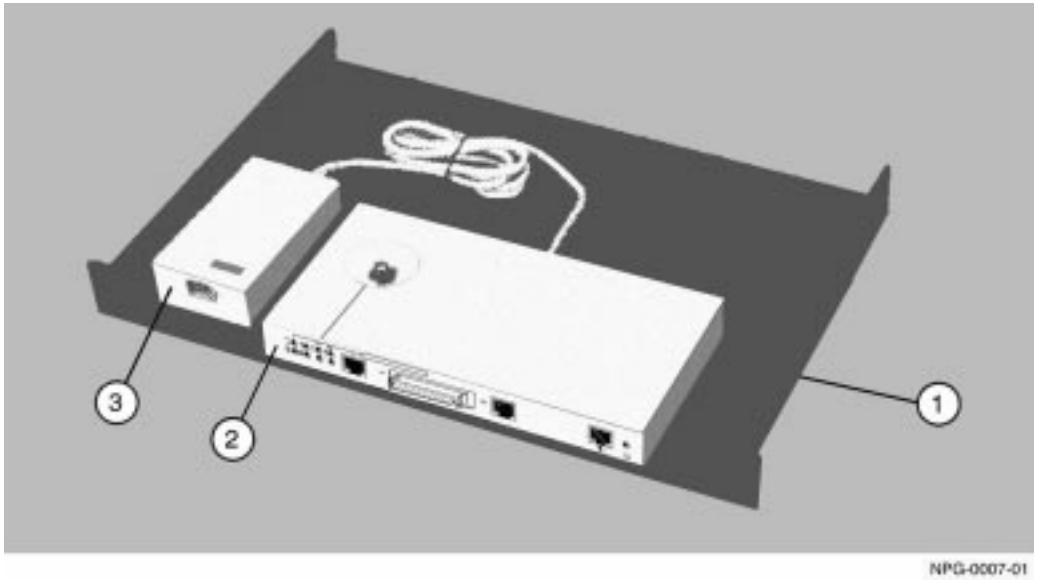
Step	Action
1	Attach two rack mount brackets (4) to the base (1) using four flat headed #6-32 screws (see Figure 2-1). The brackets can be attached in two positions flush or recessed.
2	Go to the section titled Assembling Adhesive Strips .

Attaching Adhesive Strips

To secure the router and power supply to the shelf, use eight inches of dual-lock reclosable fastening strip, (supplied with this kit). To assemble the adhesive strips, complete the following steps.

Step	Action
1	Cut three strips for the router (approximately 2 x 2-1/2 inches) and one strip for the power supply (approximately 1 x 1-1/2 inches).
2	Peel off the liner to expose adhesive surface.
3	Apply strips to one side of the router (about 1/2 inch from the end) and to the shelf. Notes: 1. Temperature should be above 68 degrees. 2. Surfaces must be clean, dry and free of oil. 3. Do not touch the adhesive after liner is removed. However the shelf with the router can be handled immediately.
4	Mount the router to the tray and press down until an audible snap is heard. Figure 2-2 shows an assembled unit.
5	After the router is mounted, connect cables as described in the section titled Cabling the Routers .

Figure 2-2. Assembled Router and Rack Mount Shelf



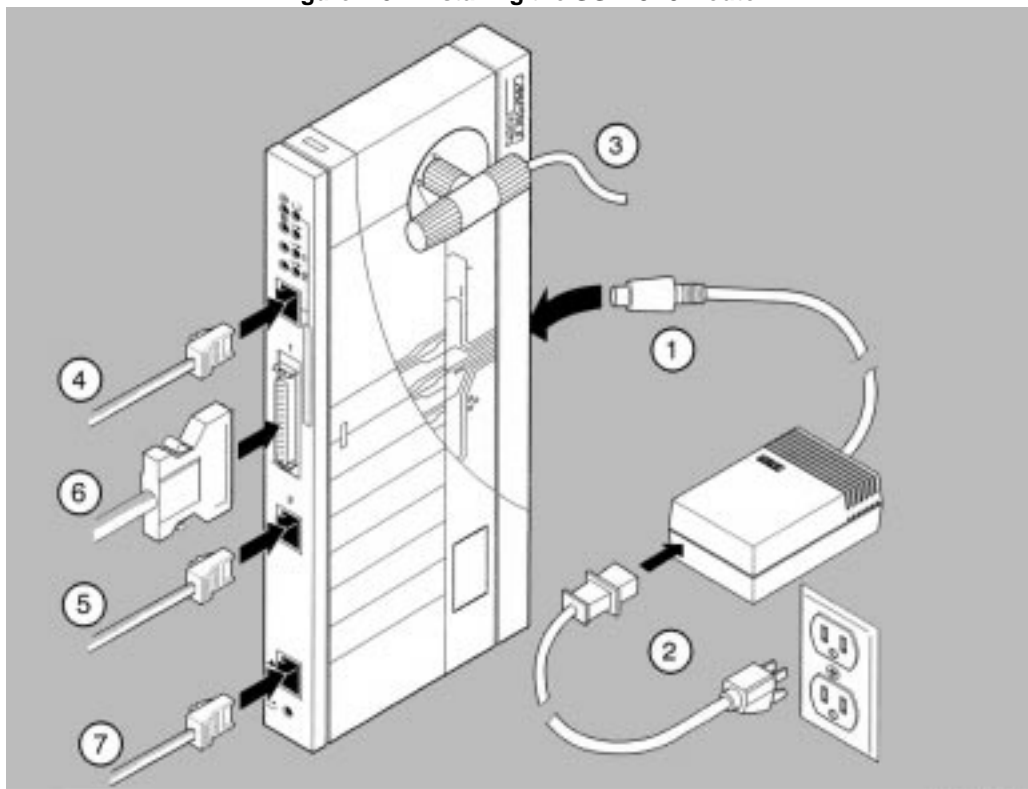
Cabling the Routers

This section describes how to cable the SSR-510 and SSR-520 routers.

Cabling the SSR-510

Figure 2-3 shows the SSR-510 router and cables. Cabling instructions follow the figure.

Figure 2-3. Installing the SSR-510 Router



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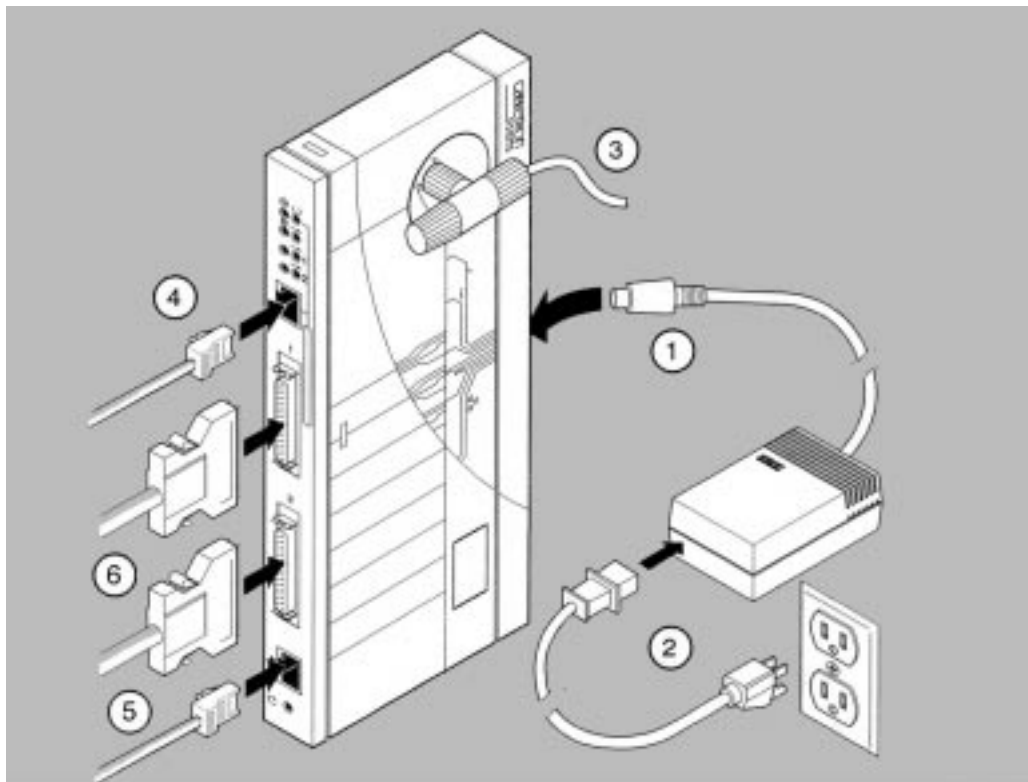
Step	Action
1	Connect the cable from the power supply to the power connector (1) on the back of the router.

Step	Action
2	Plug the ac power supply cable (2) into the power supply, then into a wall outlet.
3	<p>Upon receiving power, verify that the router's Power LED lights immediately, that the Module OK LED lights within five seconds, and that the router performs a self-test.</p> <p>Note: The self-test requires 25 seconds to complete.</p> <p>After the router completes self-test, and if the router is unconfigured, the Power, Module OK, and Network OK LEDs remain lit. The Network Activity LED blinks at a rate proportional to the amount of activity on the port.</p> <p>Note: If the LEDs do not operate as described, refer to Appendix A.</p>
4	<p>Connect the dedicated Ethernet T-connector (3) OR the Twisted Pair Connector (4):</p> <p>a) Attach the dedicated Ethernet T-connector (3) to the BNC network connector and turn the connector one-quarter turn clockwise until it locks into place. Terminate the connection with a 50-ohm terminator or extend the Ethernet segment to the next device.</p> <p>To disconnect the dedicated Ethernet T-connector, turn the connector one-quarter turn counter-clockwise until the connector clears the BNC connector stem, then disconnect the cable.</p> <p>b) OR, connect the 10BaseT cable (4) to the twisted pair connector (8-pin MJ Ethernet connector).</p> <p>Note: Do not use both dedicated Ethernet and twisted pair connectors simultaneously.</p>
5	Connect the ISDN cable (5) to Port 2 of the router.
6	Connect the serial cable (6) to Port 1 on the SSR-510 router.
7	Connect the console cable (7) using the 8-pin MJ connector. Use an H8584-AC adapter if necessary.
8	After successful installation and power-up, configuration information will display on the console monitor, including questions about your network topology.

Cabling the SSR-520

Figure 2-4 shows the SSR-520 router and cables. The table following the figure describes how to cable the router.

Figure 2-4. Installing the SSR-520 Router



NPG-0024-01

Step	Action
1	Connect the cable from the power supply to the power connector (1) on the back of the router.
2	Plug the ac power supply cable (2) into the power supply, then into a wall outlet.

Step	Action
3	<p>Upon receiving power, verify that the router's Power LED lights immediately, that the Module OK LED lights within five seconds, and that the router performs a self-test.</p> <p>Note: The self-test requires 25 seconds to complete.</p> <p>After the router completes self-test, and if the router is unconfigured, the Power, Module OK, and Network OK LEDs remain lit. The Network Activity LED blinks at a rate proportional to the amount of activity on the port.</p> <p>Note: If the LEDs do not operate as described, refer to Appendix A.</p>
4	<p>Connect the dedicated Ethernet T-connector (3) OR the Twisted Pair Connector (4):</p> <p>a) Attach the dedicated Ethernet T-connector (3) to the BNC network connector and turn the connector one-quarter turn clockwise until it locks into place. Terminate the connection with a 50-ohm terminator or extend the Ethernet segment to the next device.</p> <p>To disconnect the dedicated Ethernet T-connector, turn the connector one-quarter turn counter-clockwise until the connector clears the BNC connector stem, then disconnect the cable.</p> <p>b) OR, connect the 10BaseT cable (4) to the twisted pair connector (8-pin MJ Ethernet connector).</p> <p>Note: Do not use both dedicated Ethernet and twisted pair connectors simultaneously.</p>
5	<p>Connect the serial cables (6) to Port 1 and Port 2 on the SSR-520 router.</p>
6	<p>Connect the console cable (5) using the 8-pin MJ connector. Use an H8584-AC adapter if necessary.</p>
7	<p>After successful installation and power-up, configuration information will display on the console monitor, including questions about your network topology.</p>

Removing the Cables

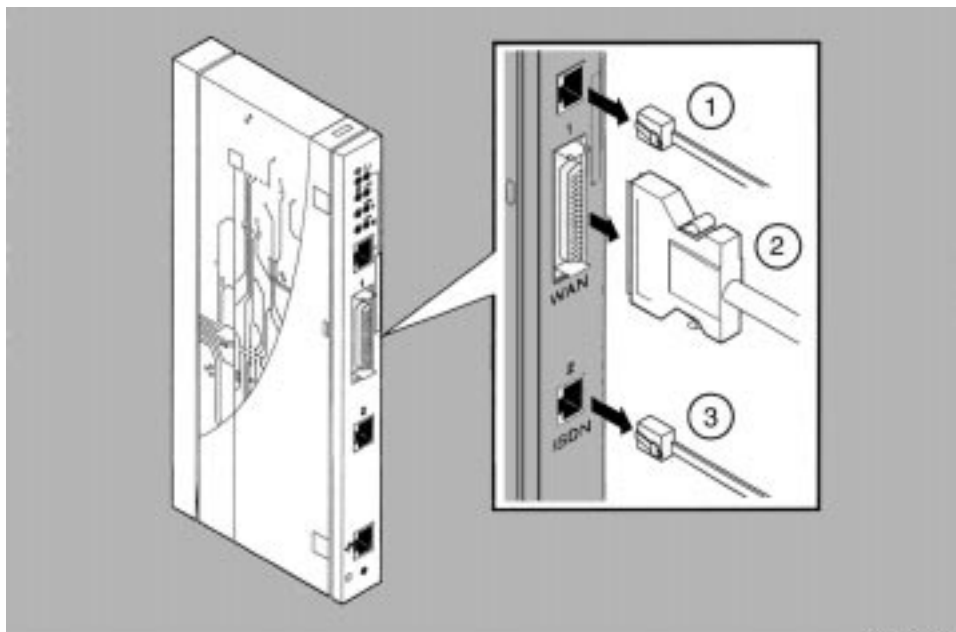
This section describes how to remove cables attached to the SSR-510 and SSR-520 routers.

Removing the SSR-510 Cables

To remove cables from the SSR-510 router, see Figure 2-5 and complete the following steps.

Step	Action
1	Press the release tab (1) on the cable plug, then pull out the cable.
2	Push in the release tabs (2) on the side of the WAN serial cable connector, then pull out the cable.
3	Press the release tab (3) on the ISDN cable plug, then pull out the cable.

Figure 2-5. Removing the SSR-510 Cables



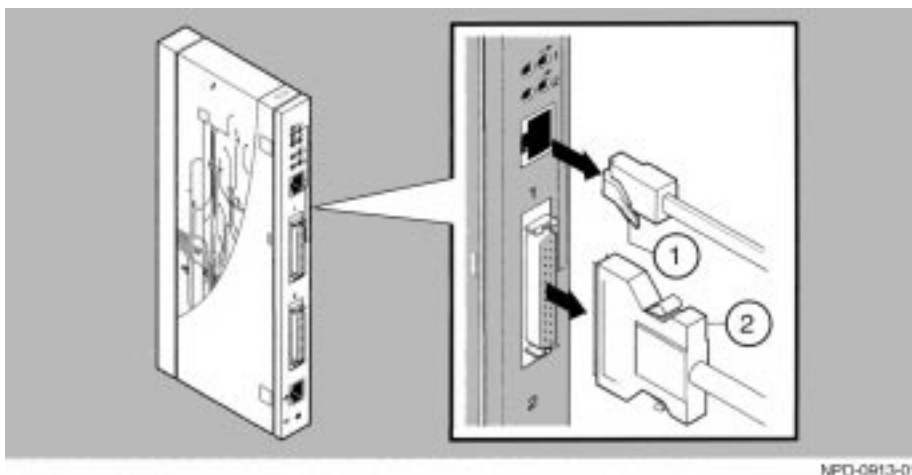
NPG-0316-01

Removing the SSR-520 Cables

To remove cables from the SSR-520 router, see Figure 2-6 and complete the following steps.

Step	Action
1	Press the release tab (1) on the cable plug, then pull out the cable.
2	Push in the release tabs (2) on the side of the WAN serial cable connector, then pull out the cable.

Figure 2-6. Removing the SSR-520 Cables



NPD-0913-01

Connecting the Console Port Cable

Overview

This chapter describes how to connect the SmartSwitch Router 510 or SmartSwitch Router 520 router to the console port.

Chapter Contents

Topic	Page
Signaling Standards	2-2
Console Port Device Cabling	2-2
Connecting the Console Port	2-3

Signaling Standards

The router console port conforms to the EIA-232D signaling standard at 9600 baud. To the user, the port appears as a data terminal equipment (DTE) device.

Console Port Device Cabling

The console port can be connected to a console port device (a terminal or personal computer), using the following cables and adapters:

If the console port device is a ...	Use this cable...	With this adapter...
PC with a 9-pin D-Sub communications port	BN24H-xx ¹	H8571-J
Terminal with a 25-pin D-Sub connector	BN24H-xx ¹	H8575-A
Terminal with a 6-pin MMJ connector	BN24H-xx ¹	Not required.

¹xx indicates cable length in meters.

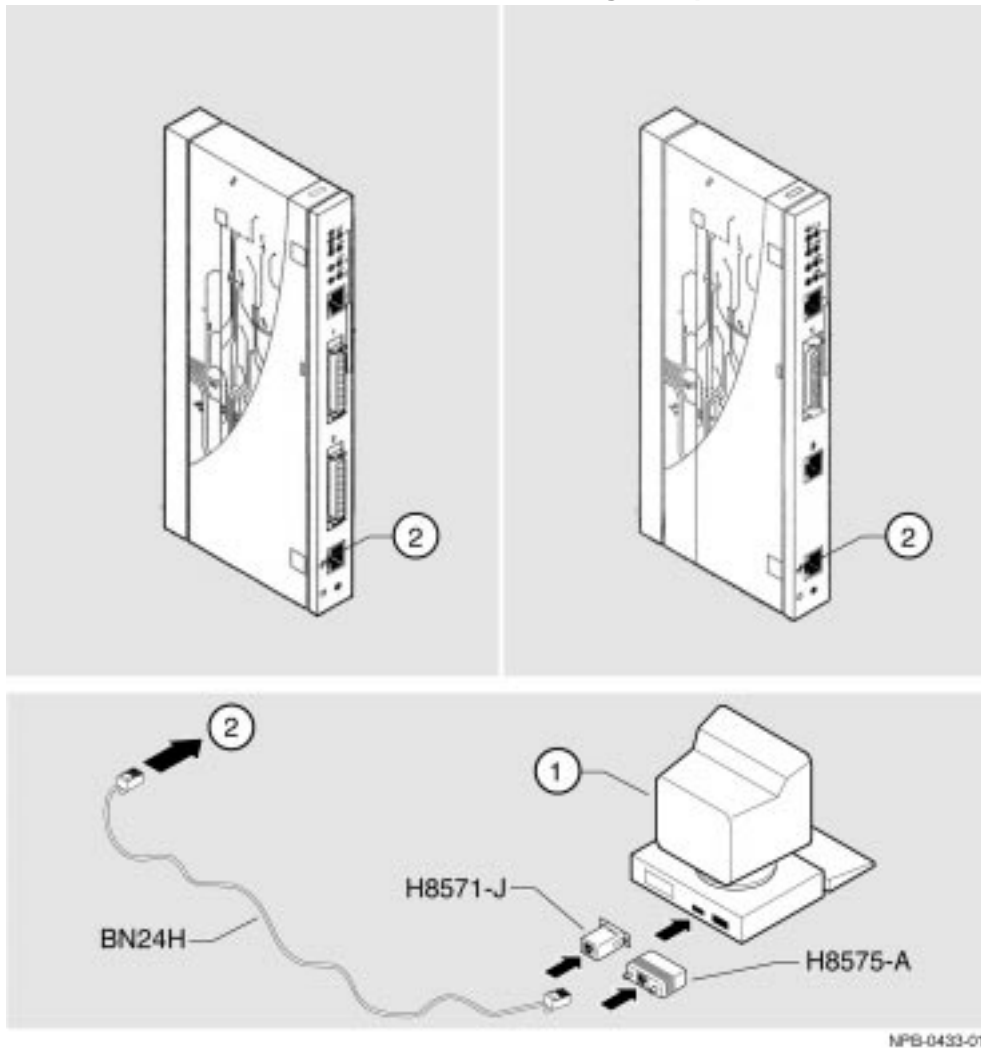
Connecting the Console Port

The console port connection is made through the console port on the router. To connect the console port on the SSR-510 or the SSR-520 routers, complete the following steps:

Step	Action
1	Ensure that the transmit and receive baud rates on the console port device are set to 9600 baud.
2	Connect the console port device to the console port connector on the router.

The router's console port is shown in Figure 3-1. The legend identifying the console port cabling follows the figure.

Figure 3-1. Console Port Cabling Components



NPB-0433-01

Item	Description
1	Console Port Device
2	Console Port

After all cables are connected, go to Chapter 4, **Configuring the Router**.

Configuring the Router

Overview

There are two ways to configure the router. The first and recommended way is to invoke the *clearVISN* Router Configurator. The *clearVISN* Router Configurator creates a configuration for the router. It allows the Router Configurator and EasyStart to load that configuration into the router. The second way is to manually configure the router using menus and the Command Line Interface (CLI).

Examples of the setup screen displays are provided in this section to aid in the description of the console port and to display the options that are available. Because they are examples only, the displays can vary slightly from the actual screen displays on your console port device. Boldface type in the screen display examples indicates user input.

Chapter Contents

Topic	Page
Using the Router Configurator to Configure the Router	4-2
Using the CLI to Manually Configure the Router	4-6
Using Menus to Set up the Router	4-10

Using the Router Configurator to Configure the Router

The following steps are required to configure your router with the *clearVISN* Router Configurator.

Step	Action
1	Install the <i>clearVISN</i> Router Configurator on the PC that you plan to use for configuring the routers on your network. The software can be found on the CD that accompanies the hardware.
2	Start the <i>clearVISN</i> Router Configurator and prepare your configuration. For additional information on the <i>clearVISN</i> Router Configurator, please refer to the <i>clearVISN Router Configurator User's Guide</i> .
3	After your configuration is complete, you must start the BOOTP server on your PC. The BOOTP server is on the START-PROGRAMS- <i>clearVISN</i> Router Configurator program group.
4	<p>If your router is direct from the factory and never had a configuration loaded into it, it is now ready to perform the EasyStart function.</p> <p>If your router has a configuration in it that you want to override, you must re-initialize it to factory defaults before EasyStart can facilitate loading the new configuration from the <i>clearVISN</i> Router Configurator.</p>
5	<p>If you are configuring the router in a LAN environment, you can now connect it to the same network as your PC and power it up.</p> <p>If you are going to load your router over a wide-area network, refer to the <i>clearVISN Router Configurator User's Guide</i> for more information on how to configure it in that environment.</p>

Step	Action
6	<p>After the router is powered up, you can verify that it is configured by connecting to it via the console port or TELNET. The console port will display the In-band management address that you selected on its menu display.</p> <p>If you successfully connect to the router with PING or TELNET, your configuration has been successfully loaded.</p>

Examples used in this section show a router power up when the system is started with factory defaults.

The term “SmrtSwTch Rtr 5xx” is used to imply either the SmartSwitch Router SSR-510 or the SmartSwitch Router SSR-520. Screens used in this chapter reflect typical SSR-510 screens. These screens are very similar to those used for the SSR-520.

Console Screens

After the configuration exists in the *clearVISN* Router Configurator, for new routers, the following screens show the power-up sequence of the router being loaded by EasyStart:

```
SmrtSwch Rtr 5xx
```

```
=====
```

SmrtSwch Rtr 5xx INSTALLATION MENU

```
*****
```

```
To fully manage this device telnet to one of the
following IP addresses or select item [3] below.
```

```
Out-of-Band: Not Configured
```

```
In-Band   : None Operational or Configured
```

```
*****
```

```
[1] Restart with Factory Defaults
```

```
[2] Restart with Current Settings
```

```
[3] Go to Local Console
```

```
=====
```

```
Enter selection : 00:00:05 EZ.001: Starting.
```

```
00:00:06 EZ.007: Waiting up to 6 seconds for devices to pass self-test.
```

```
00:00:08 AI.001: Changed params on ifc 1 (Serial Datalink),
from PSL to Frame Relay.
```

```
00:00:08 EZ.002: Changed one or more cfg params.
```

```
00:00:08 BTP.010: net 0, int Eth/0, Sent client request (htype: 1)
```

```
00:00:08 BTP.011: net 1, int SL/0, Could not snd client req because: Ifc not up
```

```
00:00:08 BTP.011: net 2, int ISDN/0, Could not snd client req because: Ifc type not suptd
```

```
00:00:08 BTP.007: net 0, int Eth/0, Valid Resp,
```

```
Server: Unknown(130.130.130.28),
```

```
Bootfile: C:\Program Files\Cabletron\RConfig\DRS\rf10935f.drs.SRM
```

```
VendOpts config file: None
```

```
IpAddr 100.100.100.47, gwAddr 0.0.0.0
```

```
00:00:08 BTP.012: net 0, int Eth/0 No cfile in vendOptions, using bootfile fld instead
```

```
00:00:08 EZ.004: Rcvd boot info: ipAddr 100.100.100.47,
```

```
ipMask 255.255.255.0 on intf 0
```

```
00:00:08 EZ.009: *** Restarting Router ***
```

Continued on the next page . . .

SmrtSwTch Rtr 5xx

=====

SmrtSwTch Rtr 5xx INSTALLATION MENU

To fully manage this device telnet to one of the
following IP addresses or select item [3] below.

Out-of-Band: Not Configured

In-Band : 100.100.100.47

- [1] Restart with Factory Defaults
- [2] Restart with Current Settings
- [3] Go to Local Console

=====

Enter selection : 00:00:05 EZ.001: Starting.
00:00:06 EZ.007: Waiting up to 6 seconds for devices to pass self-test.
00:00:08 TFTP.025: Starting tftp of file C:\Program Files\Cabletron\RConfig\DRS\rf10935f.
drs.SRM from 100.100.100.28
00:00:08 TFTP.027: Transfer completed successfully.
Writing to NVRAM.
00:00:08 TFTP.028: Writing to NVRAM completed.
00:00:08 EZ.008: TFTP transfer completed successfully.
*** EasyStart Completed Successfully ***
00:00:08 EZ.009: *** Restarting Router ***

SmrtSwTch Rtr 5xx

=====

SmrtSwTch Rtr 5xx INSTALLATION MENU

To fully manage this device telnet to one of the
following IP addresses or select item [3] below.

Out-of-Band: Not Configured

In-Band : 100.100.100.47

- [1] Restart with Factory Defaults
- [2] Restart with Current Settings
- [3] Go to Local Console

=====

Enter selection :

The router has been configured and is now ready to be used on the network.

Using the CLI to Manually Configure the Router

When you power-up a router set with factory defaults, it will automatically enter the EasyStart process.

To stop the EasyStart process, press **<Enter>** during the EZ.xxx messages. The router will restart. Upon restart, use option [3] Go to Local Console from the SmrtSwTch Rtr 5xx INSTALLATION MENU and type **Stop** *quickly* at the EasyStart prompt. The router will then restart and allow access for creating the configuration manually.

If you plan to use Telnet to access the router, you must assign an IP address. This is accomplished by selecting either [4] IP Configuration or [5] Go to Local Console from the SmrtSwTch Rtr 5xx INSTALLATION MENU. The following table describes where to locate the configuration instructions.

If you will use the console terminal port to access the router for manual configuration, the SmrtSwTch Rtr 5xx INSTALLATION MENU will display. Select either option [4] IP Configuration to configure the IP address on the Ethernet interface or option [5] Go to Local Console to configure the router using **qconfig** (quick configuration tool).

Examples used in this section show a router power up when the system is started with factory default settings.

The term “SmrtSwTch Rtr 5xx” is used to imply either the SmartSwitch Router SSR-510 or the SmartSwitch Router SSR-520.

This section assumes this is the initial configuration of the router. To verify if the router is configured, observe option [3] Show Current Settings at the SmrtSwTch Rtr 5xx INSTALLATION MENU to see if an In-Band address displays. If no address displays, *or* you see option [5] Go to Local Console in the SmrtSwTch Rtr 5xx INSTALLATION MENU the router is not configured. You can create a configuration with the *clearVISN* Router Configurator as explained previously or manually configure the router using the CLI.

After 5 seconds, if the router is not configured, the system displays the following dialog.

After the SmrtSwch Rtr 5xx INSTALLATION MENU displays twice, type **3** and press **<Return>** as shown in the following example:

```

Will start FLASH GW image in 5 seconds
Hit <ctl>C or enter cmd with <CR> to abort

Digital RouteAbout Access EW bootstrap monitor V1.0 [Jul 5 1995]
Copyright (C) 1995, Digital Equipment Corporation
>

SmrtSwch Rtr 5xx
=====
                SmrtSwch Rtr 5xx INSTALLATION MENU
                *****
                To fully manage this device telnet to one of the
                following IP addresses or select item [3] below.
                Out-of-Band: Not Configured
                In-Band : None Operational or Configured
                *****
                [1] Restart with Factory Defaults
                [2] Restart with Current Settings
                [3] Go to Local Console
=====
                Enter selection : 00:00:05 EZ.001: Starting.
00:00:06 EZ.007: Waiting up to 30 seconds for devices to pass self-test.
00:00:08 AL.001: Changed params on ifc 1 (Serial Datalink),
                from PPP to PSL.
00:00:08 EZ.002: Changed one or more cfg params.
00:00:08 BTP.010: net 0, int Eth/0, Sent client request (htype: 1)
00:00:08 BTP.011: net 1, int PPP/0, Could not snd client req because: lfc not up
00:00:08 BTP.011: net 2, int ISDN/0, Could not snd client req because: lfc type not suptd
00:00:09 BTP.010: net 0, int Eth/0, Sent client request (htype: 1)
00:00:09 BTP.011: net 1, int PPP/0, Could not snd client req because: lfc not up
00:00:09 BTP.011: net 2, int ISDN/0, Could not snd client req because: lfc type not suptd
00:00:10 BTP.010: net 0, int Eth/0, Sent client request (htype: 1)
00:00:10 BTP.011: net 1, int PPP/0, Could not snd client req because: lfc not up
00:00:10 BTP.011: net 2, int ISDN/0, Could not snd client req because: lfc type not suptd
00:00:13 EZ.003: Bootp failed.
00:00:13 EZ.006: All dlinks/parameters tried but failed; resetting to def values.
00:00:13 EZ.009: *** Restarting Router ***

SmrtSwch Rtr 5xx
=====
                SmrtSwch Rtr 5xx INSTALLATION MENU
                *****
                To fully manage this device telnet to one of the
                following IP addresses or select item [3] below.
                Out-of-Band: Not Configured
                In-Band : None Operational or Configured
                *****
                [1] Restart with Factory Defaults
                [2] Restart with Current Settings
                [3] Go to Local Console
=====
                Enter selection : 3 <Return> 00:00:05 EZ.001: Starting.

```

After the EasyStart> prompt displays, quickly type: **stop** and press **<Return>**

```
Copyright (c) 1998, Cabletron Systems Inc.
MOS Operator Control
Entering EasyStart operation. Type 'stop' to terminate.
ELS messages are automatically displayed in this mode.
EasyStart> Stop <Return>

SmrtSwch Rtr 5xx
=====
                SmrtSwch Rtr 5xx INSTALLATION MENU
                [1] Restart with Factory Defaults
                [2] Restart with Current Settings
                [3] Show Current Settings
                [4] IP Configuration
                [5] Go to Local Console

                =====
                        Enter selection:
```

To access the setup menus, press the **<Return>** key on the console port device until the SmrtSwch Rtr 5xx INSTALLATION MENU displays.

To configure the router using	Go to the section titled
Menus	Using Menus to Set up the Router (assign IP Address via menus)
Commands	Go to Local Console (assign IP Address via the CLI qconfig procedure)

Preconfigured Router Screen

If the router was previously configured, the following menu items are available.

If you press the <**Return**> key during the bootstrap operation, execute the stored image by typing **e** at the > prompt.

```
SmrtSwTch Rtr 5xx
=====
                SmrtSwTch Rtr 5xx INSTALLATION MENU
*****
To fully manage this device telnet to one of the
following IP addresses or select item [3] below.
Out-of-Band: Not Configured
In-Band      : 134.1.147.150
*****
        [1] Restart with Factory Defaults
        [2] Restart with Current Settings
        [3] Go to Local Console
=====
Enter selection :
```

Using Menus to Set up the Router

This section describes the options that are available from the SmrtSwTch Rtr 5xx INSTALLATION MENU.

Option	Page
[1] Restart with Factory Defaults	4-11
[2] Restart with Current Settings	4-12
[3] Show Current Settings	4-13
[4] IP Configuration	4-14
[5] Go to Local Console	4-19

[1] Restart with Factory Defaults

This option initializes the router's configuration to factory default values by resetting the router's nonvolatile configuration storage parameters and restarting the router. (To retain the current values, use Option [2] Restart with Current Settings.) Allow up to one minute for the router to restart.



This action deletes all configured settings and replaces them with factory default values. All configuration settings will be lost.

The following example shows the dialog associated with this selection.

```

Enter selection : 1

SmrtSwitch Rtr 5xx
=====

                        RESTART WITH FACTORY DEFAULTS

* * * * *
*           IMPORTANT!      IMPORTANT!      IMPORTANT!           *
* * * * *
* This selection will delete the current configuration *
* settings and reset the system with the factory default *
* settings. All configuration settings will be lost.      *
* * * * *
=====

                        Press Y to confirm [N]: Y <Return>
                        Press Return for Main Menu...

```

After you press <Return>, the EasyStart rebooting feature becomes active. The EasyStart feature allows the router to boot up using existing configuration files. EasyStart messages will appear on the console device. Refer to the *SmartSwitch Router 500 Series System Software Guide* and the *clearVISN Router Configurator User's Guide* for more information about the EasyStart feature.

[2] Restart with Current Settings

This option restarts the router but leaves the router's configured nonvolatile configuration storage parameters at their current values.

The following example shows the dialog associated with this selection.

```
Enter selection: 2
SmrtSwTch Rtr 5xx
=====
                RESTART WITH CURRENT SETTINGS
This selection will restart your system with the current
configuration settings.
=====
Press Y to confirm [N] : Y <Return>
Press Return for Main Menu...
```

If you select Y, then the SmrtSwTch Rtr 5xx INSTALLATION MENU will redisplay.

[3] Show Current Settings

This option shows the router's current settings. If the router is being configured for the first time, some of the fields will be blank.

The following example shows the screen display associated with this selection.

```

Enter selection : 3

SmrtSwTch Rtr 5xx
=====
SmrtSwTch Rtr 5xx,Brouter:1 Enet 1T1 1BRI,HW=1,RO=1,#4105,SW=v3.0-3
SysUpTime                : 00:07:22  23 resets
SNMP Read/Write Community : Not Available
Default Gateway           : Not Configured

Interface      IP Address      Subnet Mask      Other Info
Ethernet       134.1.147.150    255.255.255.0

=====

... Press Return to continue ...

SmrtSwTch Rtr 5xx
=====

=====

Press Return for Main Menu ...

```

[4] IP Configuration

The IP Configuration option provides you with four selections.

The following example shows the menus available with this selection.

```
Enter selection : 4

SmrtSwitch Rtr 5xx
=====
                        IP CONFIGURATION
* * * * *
* Configuration will not take effect until module      *
* is restarted                                         *
* * * * *

    [1] Set SNMP Read/Write Community
    [2] Set In-Band Interface IP Address
    [3] Set Default Gateway
    [4] Return to Main Menu

=====

Enter selection:
```

The following pages describe the IP Configuration options.

Option	Page
[1] Set SNMP Read/Write Community	4-15
[2] Set In-Band Interface IP Address	4-16
[3] Set Default Gateway	4-17

[1] Set SNMP Read/Write Community

This option prompts you to enter the router's SNMP read/write community name.

The following example shows the dialog associated with this selection.

```
Enter selection : 1

SmrtSwch Rtr 5xx
=====
                        SET SNMP READ/WRITE COMMUNITY
Format: The format for a community name is a string,
        consisting of 4 to 31 printable Ascii characters,
        that describes the relationship between an SNMP
        agent and one or more SNMP managers. The string
        defines the authentication mechanism that is employed
        to validate the use of the community by the sending
        SNMP entity.
=====

Enter the community string [public] : public <Return>

                        SNMP Read/Write community string set.

                        Press Return for IP Configuration Menu...
```

[2] Set In-Band Interface IP Address

This option prompts you to change or enter the IP address and subnet mask for the in-band interface. You can only configure one in-band interface at a time. The router does not need to be configured with a subnet mask for SNMP communications when management stations are on the same subnet as the router.

The format for these values is the standard 4-octet dotted decimal notation, in which each octet of the address is represented as a decimal value, separated by a decimal point (.).

The following example shows the dialog associated with this selection.

```
Enter selection  2

SmrtSwitch Rtr 5xx
=====

      IN-BAND INTERFACE IP ADDRESS CONFIGURATION

Format:  The standard 4 octet dotted decimal notation in which
         each octet of the address is represented as a decimal
         value, separated by a "." character.

              example: 134.12.13.14

To delete the IP address, enter 0 in the appropriate
address field.

Interface      IP Address      Subnet Mask      Other Info
Ethernet

=====
Enter the IP address [] : 134.12.13.14 <Return>
Enter the Subnet Mask [0.0.0.0] : 255.255.0 0 : <Return>
Press Return for IP Configuration Menu ...
```

[3] Set Default Gateway

This option sets the default gateway, if necessary, for the in-band interface. This is the address of a router that the router will use when communicating to a remote host. The default gateway address must be an address in the same subnet as your in-band address.

The following example shows the dialog associated with this selection.

```
Enter selection : 3
SmrtSwTch Rtr 5xx
=====

SET IN-BAND INTERFACE DEFAULT GATEWAY ADDRESS

Format:  The standard 4-octet dotted decimal notation in which
         each octet of the address is represented as a decimal
         value, separated by a "." character.

         example: 134.12.13.14

To delete the address, enter 0 in the appropriate
address field.

=====
Default Gateway []: 126.43.24.10 <Return>

Default Gateway Address Set.

Press Return for IP Configuration Menu . . .
```

Go to Local Console

This option allows you to configure the router. You must configure the router before it is operational. The `Go to Local Console` option provides two different configuration methods, depending on whether the router has been set up with factory defaults or has been previously configured.

If the router has been set up with factory defaults, then select `[5] Go to Local Console` in the `SSR-5xx INSTALLATION MENU`. This option runs a quick configuration interactive question and answer dialog. This method (`qconfig`) allows fast configuration of interfaces, basic bridging, IP, IPX, IP Routing Protocols, DECnet and booting.

If the router has been previously configured, then select `[3] Go to Local Console` in the installation menu. This option allows you to configure the router using commands to configure interfaces, bridging, and routing protocols (for example, IPX and IP).

[5] Go To Local Console

This selection runs quick configuration. If you reset to factory defaults and select `Go to Local Console` without having configured the router via the installation menu, the **qconfig** process starts automatically.

After making the changes you want, exit quick configuration and apply the changes you made by typing **restart**. The system displays the following messages:

```
Quick Config Done
Type RESTART at Config (only)> prompt for the configuration to
take effect.
Config (only) >
```

If you type **restart** at the `Config (only)>` prompt, the following message displays:

```
Config (only)>restart
Are you sure you want to restart the gateway? (Yes [No]):
```

Enter **yes** to proceed. The following menu is then displayed.

```
SmrtSwTch Rtr 5xx
=====
                SmrtSwTch Rtr 5xx INSTALLATION MENU
*****
To fully manage this device telnet to one of the
following IP addresses or select item [3] below.
    Out-of-Band: Not Configured
    In-Band      : 134.1.147.150
*****
    [1] Restart with Factory Defaults
    [2] Restart with Current Settings
    [3] Go to Local Console
=====

Enter selection :
```


Supporting ISDN for the SSR-510

Overview

This section describes SSR-510 support for ISDN. Before you begin to configure your router, you must make sure you have completed the necessary steps in obtaining ISDN support.

This chapter defines what you will need to do to obtain the proper ISDN support. ISDN configuration information resides in the *SmartSwitch Router 500 Series Network Interface Operations Guide*.

Chapter Contents

Topic	Page
Ordering Your ISDN Line	5-2
Obtaining a Network Termination Device	5-3

Ordering Your ISDN Line

You should order your basic rate ISDN service from your local telephone company or PTT. When you order your ISDN service, request 64K circuit-switched data on your “B” channels. The router does not support voice services.

Table 5-1 lists the possible value for basic rate ISDN parameters. The telephone company will provide you with the ISDN configuration parameter settings for your service. You will need these to properly configure the router for ISDN operation.

Table 5-1. Possible Values for ISDN Parameters

ISDN Configuration Parameter	Possible Values
Switch Type	<ul style="list-style-type: none">• INS64 (Japan)• VN3• NET3• AUSTEL - Australian Telecom TS.014• 5ESS (AT&T custom for 5ESS local office exchange)• DMS100 - Northern Telecom custom• NI1 - National ISDN-1, deployed by several vendors on their switches
TEI	Usually has a default value of auto.
Local Number	The number to call for your basic rate interface.
Directory Number(s)	Optional; these are normally the same as the Local Number plus one alternate number that also reaches you.

Obtaining a Network Termination Device

In the United States the telephone company provides you with a U-interface connection. Because of this, you need a network termination device (NT1) to convert the U-interface to the S/T-interface. In Europe and other parts of the world, an NT1 is not required because an S/T-interface is provided.

The network termination device (NT1) provides network termination functions to your basic rate interface (BRI) connection. The NT1 device allows you to add S/T-interface devices to your ISDN connection.

Depending on your country, you may need an NT1 device to connect the SSR-510 to your ISDN line. Check with your local telephone company or your authorized Cabletron Systems reseller to see if they can provide one for you.

Make sure the NT1 device you choose has the following items necessary to connect the router to the ISDN line:

- Power supply, either integrated or separate.
- Cable to attach the NT1 device.

Problem Solving

Overview



This appendix describes the LED functions and provides problem solving information. The LEDs on the front of the router, with this appendix, provide information to help you correct possible problems.

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Normal Powerup

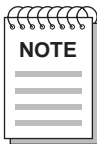
When the router power is initially turned on, the following events occur:

Event	Description
1	 The router's Power LED lights as soon as power is applied to the unit.
2	The router initiates its built-in self-test. Flashing port serial line LEDs and activity LEDs indicate that the router is running various subroutines as part of the self-test. See Table .
3	 After successful completion of the self-test, the Module OK LED lights, and remains lit. The Network Activity LED blinks at a rate proportional to the amount of activity on the port.
4	The remaining LEDs now indicate their operational status, as described in Table .

Self-Test Progress States

Upon power up, the router immediately begins a sequence of self tests and memory sizing. The following sequence of LEDs pass by so quickly that it is difficult to identify the discrete steps on a functioning router.

Should a hardware fault be detected, the LEDs will reflect the progress made into the self-test. This information can be useful when describing problems to your service representative.



These tests are run prior to the router OK LED being lit.



Table A-1 describes the router's self-test progress LED states.

Table A-1. Router Self Test Progress LED States

			1	2	3	4	5	6	
1	0	0	0	0	0	0	0	0	Microprocessor test and register setup
1	0	G	0	0	0	0	1	0	Microprocessor interrupts setup
1	0	G	0	0	0	1	0	0	Option card microprocessor setup
1	0	G	0	0	0	1	1	0	Option card interrupts setup
1	0	G	0	0	1	0	0	0	Memory controller port and memory setup
1	0	G	0	0	1	0	1	0	Peripheral controller port setup
1	0	G	0	0	1	1	0	0	Option card port set up (if present)
1	0	G	0	0	1	1	1	0	Restart configuration setup
1	0	G	0	1	0	0	0	0	Memory controller dpram test
1	0	G	0	1	0	0	1	0	Peripheral controller dpram test

Continued on the next page . . .

Table A-1. Router Self Test Progress LED States

		1	2	3	4	5	6	
1	0	G	0	1	0	1	0	Option card dpram setup (if present)
1	0	G	0	1	0	1	1	Serial channel internal loopback test
1	0	G	0	1	1	0	0	Debug console internal loopback test
1	0	0	G	0	0	0	1	Memory test setup
1	0	0	G	0	0	1	0	Bank 0 simm presence test
1	0	0	G	0	0	1	1	Bank 1 simm presence test
1	0	0	G	0	1	0	0	Test for no memory present
1	0	0	G	0	1	0	1	Test for simm size, bank 0
1	0	0	G	0	1	1	0	Test for simm size, bank 1
1	0	0	G	0	1	1	1	Re-map available memory
1	0	0	G	1	0	0	0	Refresh test
1	0	0	G	1	0	0	1	DRAM array test
1	0	0	G	1	0	1	0	Save DRAM configuration and size
1	0	0	G	1	0	1	1	Set the stack pointer and jump to manufacturing tests

1 = On, 0 = Off






G = On, Green

LED Descriptions

The router's LEDs provide dynamic indications of the status of the router. The LEDs can be in various states (on, off, or flashing), and can change color (green or yellow) depending on the operational status of the router or the level of activity on the network.

Table A-2 shows the states that are possible for each of the router's LEDs.

Table A-2. Router LED States After Self-Test Completion

LED Name	Off	On (Green)	Flashing
Power 	No power to router	Router receiving power	Faulty power connection or insufficient power
Module OK 	Self-test failed	Router passed self-test	N/A
Network OK 	Ethernet port is not connected to a properly terminated and operational LAN	Ethernet port is connected to a properly terminated and operational LAN	N/A
Network Activity 	No network activity	Heavy traffic on network	Flashes more rapidly and appears brighter as network traffic increases
Serial Line 1 OK 	Self-test failure	Normal operation	Self-test mode

Continued on the next page . . .

Table A-2. Router LED States After Self-Test Completion

LED Name	Off	On (Green)	Flashing
Serial Line 1 Activity	No traffic on the port	There is traffic on the port	Flashes more rapidly and appears brighter as network traffic increases
Port 2 OK →	Self-test failure	Normal operation	Self-test mode
Port 2 Activity	No traffic on the port	There is traffic on the port	Flashes more rapidly and appears brighter as network traffic increases

Problem Solving Using the LEDs

When diagnosing a problem with the router, note that the problem is often indicated by the states of the router's LEDs. Table A-3 lists the states of the LEDs for various error conditions that can occur during initial installation of the device, along with probable causes and corrective actions to take.

Table A-3. LED States

Symptom	Probable Cause	Corrective Action
All LEDs are off.	The router does not have power.	Secure the power cables at the back cover and between the power supply and wall outlet. Check the wall outlet using another appliance or light, or plug the power cord into another outlet. If no power is available, check the wall outlet's circuit breaker. Replace the power supply or the router if the problem persists.
	Wrong power supply.	Ensure to use only the H8767-AA power supply.
Power LED only is off.	Bad Power LED.	Replace the router.
Module OK LED is off.	Self-test failed.	If the LED does not light after 5 seconds, reset the router to repeat the self-test. Check console and reload flash. If the self-test fails again, replace the router.

Continued on next page ...

Table A-3. LED States

Symptom	Probable Cause	Corrective Action
Network OK LED does not stay on after the functional code begins execution.	The network interface self-test has failed.	Refer to the <i>SmartSwitch Router 500 Series System Software Guide</i> to determine the network interface status and to display any logged network interface events.
Network Activity LED is off.	There is low network activity or no network activity.	Ensure that there is network activity. If the Network Activity LED still fails to turn on, then turn the unit off momentarily by removing it from the power supply. Check that the Network Activity LED blinks momentarily during the LED powerup self test.
	If the router is connected to a known active segment and the Network Activity LED is off, then the router is defective.	Replace the router.
Serial Port 1 or Serial Port 2 OK LED does not stay on after the functional code begins execution.	Serial Port 1 or 2 interface self-test has failed.	Refer to the <i>SmartSwitch Router 500 Series System Software Guide</i> to determine the serial port interface status and to display any logged serial port interface events.

Continued on next page ...

Table A-3. LED States

Symptom	Probable Cause	Corrective Action
Serial Port 1 or Serial Port 2 Activity LED is off.	There is low serial port activity or no serial port activity.	Ensure that serial port activity is present. If the Serial Port Activity LED still fails to turn on, then turn the unit off by removing it from the power supply. Check that the Serial Port Activity LED blinks during the LED powerup self-test. If the Serial Port Activity LED blinks, then the Serial Port Activity LED portion of testing has passed. If the Serial Port Activity LED still fails to turn on, then the router is defective.
	Ensure that the cable has activity on it. If the LED still fails to turn on, then the port is defective.	Replace the router.
Console terminal does not appear work.	Wrong cable.	Try connecting the console terminal to the router using a null modem cable with the appropriate 8-pin MJ RS232 connector on the router end.
	Wrong baud rate.	Send a BREAK to the console and then press <Return> several times until the console responds. Proper baud rates are 300, 1200, 2400, 4800, 9600, 19200, and 38400.
	Defective router.	Replace the router.

Connectors, Adapters and Cable Connections

Overview

This appendix shows detailed illustrations of the connectors, adapters, pin assignments and cable connections used on the SSR-510 and the SSR-520.

Appendix Contents

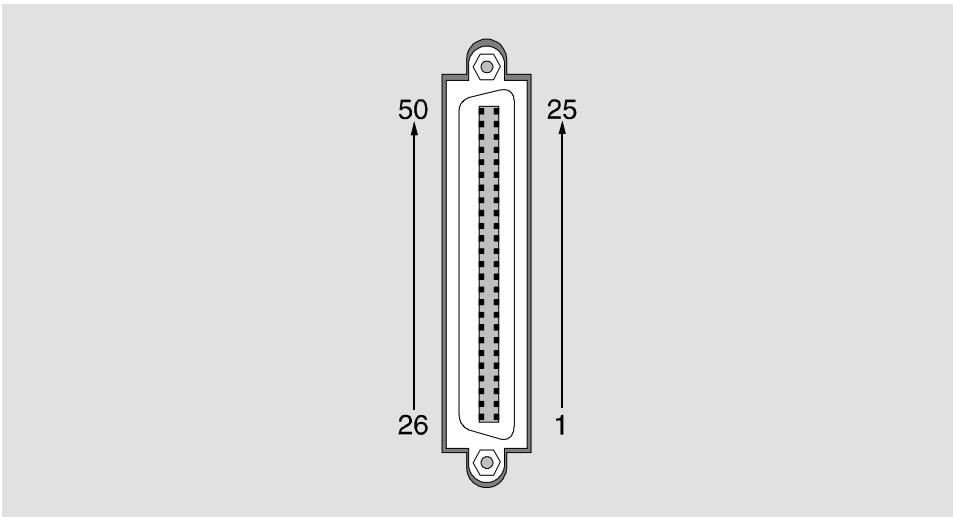
Topic	Page
Connector Assignments	B-2
Adapters	B-5
Cable Connections	B-6

Connector Assignments

50-pin Serial Port Connector

Figure B-1 shows the 50-pin serial port connector and its pin assignments. Table B-1 describes the pin assignments.

Figure B-1. 50-pin Connector



NPG-0275-95F

Table B-1. 50-pin Connector Assignments

Pin	Assignment	Pin	Assignment
1	Code Ground ¹	2	Cable_ID<1>
3	N/C	4	DSR A
5	TX Data A	6	DCD A
7	TX Data A	8	RTS A
9	CTS A	10	RX Data A

Continued on the next page . . .

Table B-1. 50-pin Connector Assignments

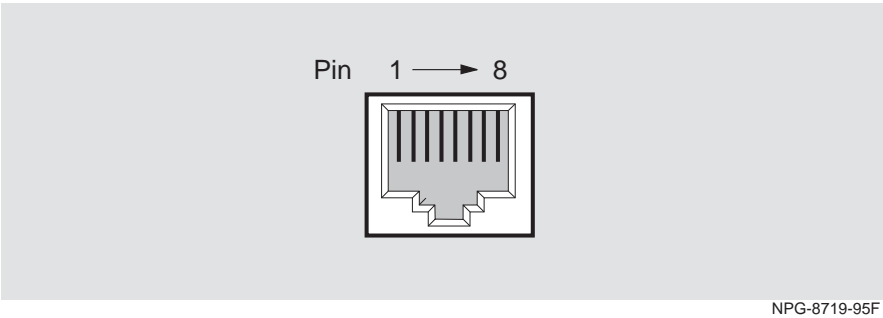
Pin	Assignment	Pin	Assignment
11	Ring Indicate	12	N/C
13	RX Clock A	14	DTR A
15	TX Clock A	16	N/C
17	TX Clock A	18	N/C
19	TX Clock A	20	LBK
21	V.35 TX Clock A	22	V.35 Clock A
23	V.35 RX Data A	24	V.35 TX Data A
25	V.35 RX Clock A	26	Cable_ID<0>
27	Cable_ID<2>	28	N/C
29	DSR B	30	TX Data B
31	DCD B	32	RTS A
33	RTS B	34	CTS B
35	RX Data B	36	N/C
37	DTE Ground ¹	38	RX Clock B
39	DTR B	40	TX Clock B
41	N/C	42	TX Clock B
43	N/C	44	DTR A
45	N/C	46	V.35 TX Clock B
47	V.35 Clock B	48	V.35 RX Data B
49	V.35 TX Data B	50	V.35 RX Clock B

¹Contacts tied together.

10BaseT Port (8-pin MJ) Connector

Figure B-2 shows the 8-pin MJ crossover connector and its pin assignments. Table B-2 describes the pin assignments.

Figure B-2. 8-pin MJ Connector



NPG-8719-95F

Table B-2. 8-pin MJ Connector Assignments

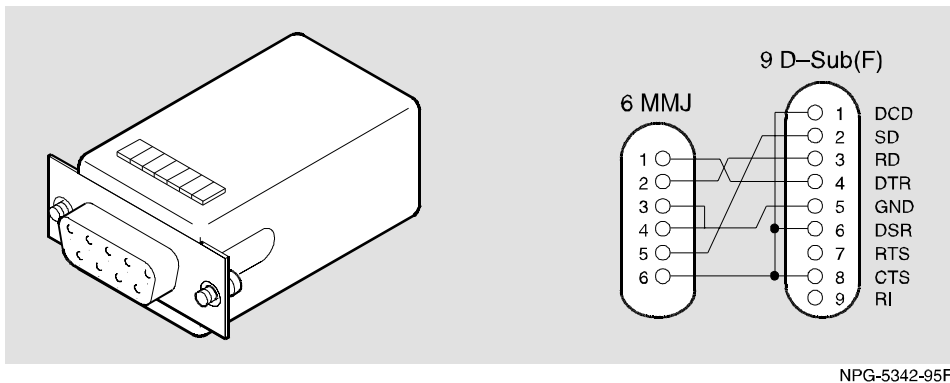
Pin	Assignment	Pin	Assignment
1	RX+	5	Unused
2	RX-	6	TX-
3	TX+	7	Unused
4	Unused	8	Unused

Adapters

H8571-J Adapter

Figure B-3 shows the H8571-J adapter (6-pin MMJ connector to 9-pin D-Sub connector) and its pin assignments.

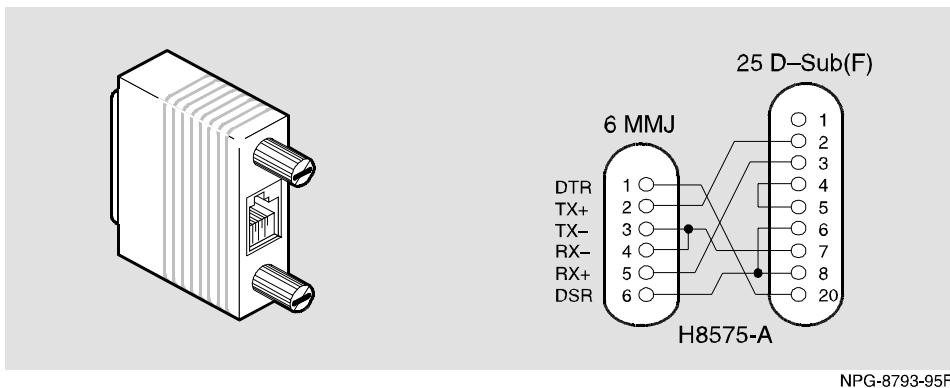
Figure B-3. H8571-J Adapter



H8575-A Adapter

Figure B-4 shows the H8575-A adapter (6-pin MMJ connector to 25-pin D-Sub connector) and its pin assignments.

Figure B-4. H8575-A Adapter



Cable Connections

Tables B-3 through B-8 list the proper cable connections for the X.21, EIA422, V.35, EIA530A, EIA423, and V.24/EIA232 standards.

Table B-3. X.21 Cable Connections (BC12F-06)

From Pin Connector (P1)	To X.21 Pin Connector (P2)	Signal Name
1, 2, 26	–	Code Ground ¹
5	2	T(A) TX Data A
30	9	T(B) TX Data B
6	5	I(A) DCD A
31	12	I(B) DCD B ²
8	3	C(A) RTS A
33	10	C(B) RTS B
10	4	R(A) RX Data A
35	11	R(B) RX Data B ²
17	6	S(A) TX Clock A
22	13	S(B) TX Clock B ²
13, 15	-	RX Clock A DTE Clock B ¹
38, 40	-	RX Clock B DTE Clock B ²
37	8	G DTE Ground

¹ Contacts tied together.

² 120 OHM resistor, 1/2w between pins 6 and 31, 10 and 35, 17 and 42. The resistors are at the P1 end of the cable.

Table B-4. EIA422/V.11/V.36 Cable Connections (BC12H-06)

From Pin Connector (P1)	To EIA422 Pin Connector P2)	Signal Name
1, 27	–	Code Ground ¹
4	11	DSR A
29	29	DSR B
5	4	TX Data A
30	22	TX Data B
6	13	DCD/I A
31	31	DCD/I B
8	7	RTS/C A
33	25	RTS/C B
9	9	CTS A
34	27	CTS B
10	6	RX Data A
35	24	RX Data B ²
11	15	Ring Indicate
12	20	DCE Ground
13	8	RX Clock A
38	26	RX Clock B ²
14	12	DTR A
39	30	DTR B

Continued on next page ...

Table B-4. EIA422/V.11/V.36 Cable Connections (BC12H-06)

From Pin Connector (P1)	To EIA422 Pin Connector P2)	Signal Name
15	17	Clock A
40	35	Clock B
17	5	TX Clock A
42	23	TX Clock B ²
18	18	Test Indicate
37	19, 37	DTE Ground ¹
20	10	Local Loop
41	16	Speed Select
45	14	Remote Loop
Shell	Shell	Shield Braid

¹ Contacts tied together.

² 120 OHM resistor, 1/2w between pins 10 and 35, 13 and 38, 17 and 42. The resistors are at P1 end of cable.

Table B-5: V.35 Connection (BC12G-06)

From Pin Connector (P1)	To V.35 Pin Connector (P2)	Signal Name
1, 26	–	Code Ground ¹
4	E	DSR A
6	F	DCD/I A
9	D	CTS A
11	J	Ring Indicate
21	Y	TX Clock A
46	A	TX Clock B
22	U	Clock A
47	W	Clock B
23	R	RX Data A
48	T	RX Data B
24	P	TX Data A
49	S	TX Data B
25	V	RX Clock A
50	X	RX Clock B
32	C	RTS
12, 29, 31, 34, 37	B	DTE Ground ¹
44	H	DTR
Shell	Braid Strap	Overall Cable Shield
20	K	Local Loop

¹Contacts tied together.

Table B-6: EIA530A Cable Connections (BC12J-06)

From Pin Connector (P1)	To EIA530A Pin Connector (P2)	Signal Name
1, 26, 27	—	Code Ground ¹
4	6	DSR A
5	2	TX Data A
30	14	TX Data B
6	8	DCD/I A
31	10	DCD/I B
8	4	RTS/C A
33	19	RTS/C B
9	5	CTS A
34	13	CTS B
10	3	RX Data A
35	16	RX Data B ²
11	22	Ring Indicate
12	23	DCE Ground
13	17	RX Clock A
38	9	RX Clock B ²
15	24	Clock A
40	11	Clock B
17	15	TX Clock A
42	12	TX Clock B ²

Continued on next page ...

Table B-6: EIA530A Cable Connections (BC12J-06)

From Pin Connector (P1)	To EIA530A Pin Connector (P2)	Signal Name
18	25	Test Indicate
20	18	Local Loop
29, 37	7	DTE Ground ¹
44	20	DTR
45	21	Remote Loop
Shell	Shell	Shield Braid

¹Contacts tied together.

²120 OHM resistor, 1/2W between pins 10 and 35, 13 and 38, 17 and 42. The resistors are at P1 end of cable.

Table B-7: EIA423/V.10 Cable Connections (BC12K-06)

From Pin Connector (P1)	To EIA423 Pin Connector (P2)	Signal Name
1, 2, 27	—	Code Ground ¹
4	11	DSR A
29	29	DSR B
6	13	DCD/I A
31	31	DCD/I B
7	4	TX Data
9	9	CTS A
34	27	CTS B
10	6	RX Data A
35	24	RX Data B
11	15	Ring Indicate
12	20	DCE Ground
13	8	RX Clock A
38	26	RX Clock B
17	5	TX Clock A
42	23	TX Clock B
18	18	Test Indicate
20	10	Local Loop
32	7	RTS/C

Continued on next page ...

Table B-7: EIA423/V.10 Cable Connections (BC12K-06)

From Pin Connector (P1)	To EIA423 Pin Connector (P2)	Signal Name
37	19, 22, 25, 30, 35, 37	DTE Ground ¹
41	16	Speed Select
44	12	DTR
45	14	Remote Loop
Shell	Shell	Shield Braid
19	17	Clock

¹Contacts tied together.

Table B-8: V.28/EIA232 Cable Connections (BC12L-06)

From Pin Connector (P1)	To V.24/EIA232 Pin Connector (P2)	Signal Name
1, 2	–	Code Ground ¹
4	6	DSR A
6	8	DCD/I A
7	2	TX Data
9	5	CTS A
10	3	RX Data A
11	22	Ring Indicate
13	17	RX Clock A
17	15	TX Clock A
18	25	Test Indicate
19	24	Clock
20	18	Local Loop
32	4	RTS
12, 29, 31, 34, 35, 37, 38, 42	7	DTE Ground ¹
41	23	Speed Select
44	20	DTR
45	21	Remote Loop

¹ Contacts tied together.

Product Specifications

Overview

This appendix lists the specifications and available parts for the SSR-510 and SSR-520.

Appendix Contents

Topic	Page
Product Specifications	C-2
Acoustical Specifications	C-3
Connectors	C-4
Parts List	C-5

Product Specifications

Table C-1 lists the product specifications for the router.

Table C-1. Product Specifications

Parameter	Specification
Environment:	
Operating Temperature ¹	5° C to 50° C (41° F to 122° F)
Relative Humidity	10% to 95% noncondensing
Operating Altitude	Sea level to 4267 m (14,000 ft)
	Relative humidity 10% to 95%
Non-Operating Altitude	Sea level to 12192 m (40,000 ft)
Power:	
	5 W @ 1.0 amps, total power
	1.0 A, 5Vdc, 5 W
	0.0 A, 12Vdc, n/a
	0.0 A, 15Vdc, n/a
Physical:	
Height	31.12 cm (12.25 in)
Width	3.2 cm (1.25 in)
Depth	11.2 cm (4.4 in); 13.5 cm (5.3 in) when installed as a standalone unit.
Weight	0.82 kg (1.5 lb)
Shock (Class A/B for products weighing under 100 lbs)	10 G / 10 ms half sine pulse in three orthogonal axes
Vibration (Class C)	5 to 200 Hz sine sweep @ 0.25 G limited by 0.02" (0.5mm) displacement DA* 200 to 500 Hz sine sweep @ 0.10 G
Certification	CE, CSA, FCC, TÜV, UL, VCCI, C-TICK, BCIQ

¹For sites above 2400 m (8,000 ft), decrease the operating temperature specification by 1.8° C for each 1000 m or 3.2°F for each 3200 ft.

Acoustical Specifications

Table C-2 lists the acoustical specifications for the router in English.
Table C-3 lists the acoustical specifications in German.

**Table C-2. Acoustical Specifications
(Declared Values per ISO 9296 and ISO 7779)¹**

Product	Sound Power Level $L_{WA,d}$, B	Sound Pressure Level L_{pAm} , dBA (bystander positions)
	Idle/Operate	Idle/Operate
SmartSwitch Router 510 and SmartSwitch Router 520	No measureable noise emissions.	No measureable noise emissions.

¹ Current values for specific configurations are available from Cabletron Systems representatives. 1 B = 10 dBA.

**Table C-3. Aktuelle Werte für spezielle Produkt
(Schallemissionswerte Werteangaben nach ISO 9296 und
ISO 7779/DIN EN27779)²**

Produkt	Schalleistung- speigel $L_{WA,d}$, B	Schalldruckpegel L_{pAm} , dBA (Zuschauerpositionen)
	Leerlauf/Betrieb	Leerlauf/Betrieb
SmartSwitch Router 510 and SmartSwitch Router 520	keine meßbaren Schallemissionen	keine meßbaren Schallemissionen

² Aktuelle Werte für spezielle Ausrüstungsstufen sind über die Cabletron Systems Vertretungen erhältlich. 1 B = 10 dBA.

Connectors

Table C-4 provides a list of connectors for the SSR-510 and SSR-520.

Table C-4: Connectors for the SSR-510 and SSR-520

Connectors	Quantity
8-pin MJ 10BaseT twisted pair connector	2
50-pin WAN connector	2

Parts List

Table C-5 provides a list of available parts for SSR-510 and SSR-520.

Table C-5. SSR-510 and SSR-520 Parts List

Part	Part Number
Console Port Adapter	H8584-AC
Cable, EIA530A	BC12J-06
Cable, RS232/V.28	BC12L-06
Cable, RS422/V.11	BC12H-06
Cable, RS423/V.10	BC12K-06
Cable, V.35	BC12G-06
Cable, X.21 (LL)	BC12F-06

Installation Information – United Kingdom

Overview

This appendix contains the installation information, which is required for the United Kingdom only.

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Power Rating, Router Isolation and Safety Status	D-3
Cable Approval	D-4
Equipment Between the Approved Router and a Digital Circuit (PTT)	D-5

Service Categories

Table D-1 lists the BABT-approved service specifications for the router for UK compliance.

Table D-1: BABT-Approved Service Specifications

Service Requirements	Service Category 1	Service Category 2
Interface Type	X.21 bis	X.21 bis
Electrical	V.24/V.28	V.35
Physical	ISO 2110, BS.6623: part 1, 1985	ISO 2593. BS.6623: part 4, 1986
Approved Cables	Adapters: <ul style="list-style-type: none">• BC12L-06	Adapters: <ul style="list-style-type: none">• BC12G-06
Data Rate (bps) available from Public Telecommunications Operators	2400: BT, Hull, MCL ¹ 4800: BT, Hull, MCL ¹ 9600: BT, Hull, MCL ¹ 19200: MCL ¹	48k: BT, Hull, MCL ¹ 56k: BT, MCL ¹ 64k: MCL ¹ 2048k: N/A

¹BT - British Telecommunications plc
Hull - Kingston Communications (Hull) plc
MCL - Mercury Communications Limited

Power Rating, Router Isolation and Safety Status

Host Power Rating

In this design, all permutations of the host configuration should operate within the limits of the host power rating as shown in Table D-2.

Table D-2. Router Power

Input Voltage	Max. Input Current (Amperes)
+5.25 Vdc	1.0 amps

Router Isolation

No special clearances or creepage distances need to be maintained as the SSR-510 and SSR-520 is contained within its own cabinet, which meets all clearances for PTT approval.

Safety Status

All interconnection points on this product are SELV circuits and should only be connected to products with like SELV circuits.

Cable Approval

The router is approved for direct connection to a particular digital circuit. This approval includes an interconnecting cable with mating connectors that conform to the British standard BS6623, parts 1 and 4. If the router is connected to the service with anything other than its own approved cables, those cables must benefit from relevant general approval NS/G/1235/100009 or conform to any other applicable requirements, or both.

Supported Cables

Table D-3 lists supported cables. The approved router may not use all of these cables; therefore, check the instructions to determine which interface types are supported.

Table D-3. Cables Supported by the Approved Router

Interface	Cable Type	Name	Molding	Pins
V.24/V.28	Adapter	BC12L-06	Straight	50-25
V.10	Adapter	BC12K-06	Straight	50-37
V.35	Adapter	BC12G-06	Straight	50-34
X.21	Adapter	BC12F-06	Straight	50-15

Equipment Between the Approved Router and a Digital Circuit (PTT)

If you are going to connect any other equipment, including cables or wiring, between the approved router and the point of connection to any particular digital circuit, then that equipment must conform to the following standards:

- The overall transmission characteristics of all other equipment must not have any material effect on the electrical conditions between the equipment and the digital circuit.
- The equipment must be approved, which may be subject to limitations on its use, for the purpose of connection between it and a particular digital circuit.
- Cable or wiring must comply with a code of practice for the installation of equipment covered by this standard or other requirements that may be applicable.

